

PROCEEDINGS OF THE ROYAL ENTOMOLOGICAL SOCIETY OF LONDON

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ORDINARY MEETING.

WEDNESDAY, 5TH MAY, 1954, at 5.30 p.m.

AGENDA

1. Confirmation of the Proceedings of the Ordinary Meeting held on 7th April, 1954.
2. Recommendations of candidates for Fellowship. First reading.
3. Recommendations of candidates for Fellowship. Second reading.
4. Announcement of election of new Fellows.
5. Additions to the Library. [See p. 14.]
6. Admission of Fellows.
7. Papers accepted for publication in the *Transactions*.
8. Exhibits.

Fellows are particularly requested to bring suitable exhibits to the Meeting even though it may not be possible to announce their intention to do so beforehand.

Note.—To avoid congestion in the Library and to enable exhibits to be displayed to greater advantage, a table has been placed in the meeting-room for this purpose. Fellows are asked to place their exhibits on this table with a suitable explanatory note, as soon as possible on the afternoon of the meeting, so that they are available for inspection there before the meeting opens.

9. Communications.

1. Professor O. W. Richards.

Wingless Flies.

[ABSTRACT.]

In the family Sphaeroceridae, apterous or brachypterous species occur somewhat frequently. They are especially frequent on the African mountains (9 species on Mt. Elgon, 6 on Ruwenzori) or on islands (5 species on Juan Fernandez). Their study raises some interesting problems in taxonomy and evolution.

2. Dr. K. Mellanby, C.B.E.

The effect of sub-lethal high temperatures on the pupa of the mealworm,
Tenebrio molitor L.

[ABSTRACT.]

When pupae of the mealworm from cultures bred at 23° C. (73° F.) are exposed to temperatures of 44° C. (112° F.) for one hour they are all killed. An exposure of one hour to 40° C. (104° F.) has no ill effect. Intermediate temperatures cause imperfect adults to emerge. The degree of deformity of the adult depends on the temperature used, and on the stage of development of the pupa. The older the pupa at the time of exposure the greater the deformity. Five more or less definite stages of abnormality can be recognised.

TEA will be served in the Library before the meeting.

THE SOCIETY'S DEVELOPMENT POLICY.

As foreshadowed by Council in the Annual Report for 1953, consideration is being given to lines of development open to the Society.

A suggestion that the Society's field of activity might be extended to include all Land Arthropods is now before Council.

To do this it will be necessary to extend the Library to cover Arachnids, Mites and their allies and to institute a journal to provide an avenue for the publication of papers on these groups.

An indication of the views of Fellows would be of help to Council in their deliberations, and expressions of opinion from Fellows and others for whom the extended activities would cater would be appreciated.

SIXTH COMMONWEALTH ENTOMOLOGICAL CONFERENCE, JULY, 1954.

It has been decided to hold an Evening Reception on Tuesday, 13th July, in the Society's Rooms, to enable entomologists in this country to meet the delegates from overseas attending the above Conference. Postcards enabling Fellows to apply for tickets will be sent at the end of May to those resident in this country. The Honorary Secretary would be grateful if any Overseas Fellows who expect to be in England at that time would notify him, giving addresses to which cards may be posted.

WEEKEND MEETING IN YORK, 23rd-26th JULY, 1954.

The attention of Fellows resident in this country is drawn to the enclosed leaflet giving details of the arrangements for the weekend meeting in York. Fellows who hope to be present are asked to complete and return the accompanying form as soon as possible.

PROCEEDINGS OF THE ORDINARY MEETING HELD ON 7TH APRIL, 1954.

Professor P. A. BUXTON, C.M.G., F.R.S., President, in the Chair.

Present, 64 Fellows and 11 Visitors.

The President announced that Council was considering a suggestion that the Society might enlarge its field to include all land Arthropods. This could be done by extending the Library to cover Arachnids, etc., and by founding a journal for the publication of papers on these groups. Comment was invited from the Fellows present and Dr. Hugh Scott, Dr. B. M. Hobby, Mr. C. N. Hawkins and Miss Cynthia Longfield spoke in favour.

Dr. Hobby called attention to the reference to a new genus and species in the report of Mr. Leston's exhibit at the last meeting. He said he felt it was very desirable that such brief descriptions should be avoided in the Society's publications. The Honorary Secretary replied that he had himself had serious misgivings and had discussed the matter with Mr. Leston, after which he had agreed to the publication of the note in the present form on the understanding that the detailed description was going forward, and would contain an appropriate reference to these *Proceedings*. He had felt that so long as the danger was realised and, so far as possible, anticipated, no harm would be done.

Mr. Leston said he himself appreciated the danger, but in view of certain other work now in progress on the eggs and ovipositors of Heteroptera it was desirable for the matter in question to be published in a preliminary form as soon as possible. There was no doubt that the full description would appear in *Vidensk. Medd. dansk. naturh. Foren., Kbh.* shortly.

Mr. W. H. Potts and Mr. H. Oldroyd referred to the unsuitability of *Proceedings Series C* as a medium for the publication of new names.

Dr. Hobby then said he felt the situation would be met as long as the description in the Scandinavian journal did not refer to the genus and species as new and included a reference to *Proceedings Series C*.

The minutes of the Ordinary Meeting held on 3rd March, 1954, were confirmed and signed by the President.

The names of the following candidates were read for the first time : Dr. George F. Edmunds, Jr. ; Mr. David Stephen Fletcher ; Mr. John Francis Deryk Frazer ; Monsieur Henri Stempffer ; Mr. P. A. Subramaniam, M.Sc. ; Miss Maureen Anne Turner.

For the second time (taken as read) : Miss Emy M. E. von Bertele ; Major Charles Francis Cowan, R.A. ; Mr. John Forsyth Davidson, J.P., M.A. ; Mr. Charles Edward Dyte, B.Sc. ; Mr. Bernard Charles Albert Earl ; Mr. V. Kumar Gupta ; Dr. John Douglas Hood ; Father Guillermo Kuschel ; Miss Helen Margaret Morris, B.Sc., A.R.C.S. ; Mr. Charles Ronald Ribbands ; Mr. Suresh Chandra Saxena ; Mr. Hattiyangadi Shantaram, M.Sc. ; Mr. Gurdas Singh ; Mr. Prakash C. Singha, B.Sc. ; Mr. Gerald Stell, B.Sc. ; Professor O. Theodor ; Mr. Johan George Theron.

The Secretary read the names of the following newly elected Fellows of the Society : Dr. Charles John Banks, Rothamsted Experimental Station, Harpenden, Herts. ; Mr. Sydney Roskrige Bowden, 33, South View, Letchworth, Herts. ; Mr. Lionel Jack Dumbleton, South Pacific Commission, Noumea, New

Caledonia ; Mr. John Watson Egglestone, M.Inst.W.E., Firbeck House, 5, Hutton Avenue, Cockton Hill, Bishop Auckland, Co. Durham ; Mr. B. Goater, B.Sc., 121, Park Road, Chandler's Ford, Hants. ; Dr. Herbert Ferdinand Jung, Dr.phil. nat., Hirschenstrasse 62, Fürth in Bayern, Germany ; Mr. Roderick Donald MacCuaig, 2, The Mount, Old Blandford Road, Salisbury, Wilts. ; Mr. Herbert Mansfield, White House, 64, Whitebirk Road, Blackburn, Lancs. ; Dr. Shah Mashhood Alam, Ph.D., Zoology Department, Imperial College, Prince Consort Road, S.W. 7 ; Mr. John Roantree, A.M.I.E.T., 16, Knowefield Avenue, Stanwix, Carlisle ; Mr. F. G. A. M. Smit, The Zoological Museum, Tring, Herts. ; Mr. John Spencer Timlin, The Zoology Dept., Imperial College, Prince Consort Road, S.W. 7 ; Mr. Walter Archibald Wilson, Sunny Patch, 16, Ballfield Road, Minehead, Somerset ; Dr. Abraham Willink, Instituto Miguel Lillo, Miguel Lillo 205, Tucumán, Argentina ; Mr. Walter John Watts, Glaslie, First Avenue, Stanforde-le-Hope, Essex.

Thanks were voted to donors of gifts to the Library since the last meeting.

Captain J. C. S. Marsh, Mr. J. S. Timlin, and Dr. A. Willink signed the Obligation Book and were admitted Fellows of the Society.

Professor Buxton exhibited specimens of the remarkable cave Tettigonid, *Diestrammena graveleyi* Chopard, 1916. He said he had collected the specimens in the Batu Cave, Kuala Lumpur, Malaya. The insects live in the deep parts of the cave in complete darkness ; they are quite wingless with reduced eyes, but possess immensely long antennae and unusually long legs. One can feel little doubt that their tactile sense is of very great importance to them. It is thought that they are predatory, probably feeding on larvae of several types of Diptera or of one species of Tineid moth which breeds in the bats' dung in the caves. Dr. D. R. Ragge of the British Museum (Natural History) had pointed out that unfortunately there are two type localities of this insect. Chopard described the female cotype from the Batu Caves and the male cotype from the Lengong Caves in Perak, Malaya.

Professor Buxton continued that it was an interesting point that cave Orthoptera of the same family and sub-family (Rhaphidophoridae, Rhaphidophorinae) occur widely in Asia and Oceania. He had collected one himself in the Samoan Islands. It was extremely difficult to understand how a blind cavernicolous insect could colonise caves in an oceanic island. The proverbial floating log hardly supplied an explanation.

Miss D. J. Jackson exhibited dissections and slides of *Dytiscus lapponicus* Gyll. to illustrate the incapacity for flight of a few specimens collected in the Scottish Highlands. In none were normal flight muscles present and the metatergum and the discs of the pleural flight muscles showed modifications as compared with the development of these parts in a *Dytiscus* capable of flight. From Sweden one specimen had been dissected with flight muscles of normal appearance, though with narrow fibres, and it had a well developed metathorax, but other Swedish specimens had the flight muscles abnormal. It is suggested that incapacity for flight may explain the curiously local distribution of this species in Britain.

Miss Jackson added that living or spirit-preserved specimens of *Dytiscus lapponicus* would be much appreciated.

Dr. B. M. Hobby made a short communication on an example of homoeosis in an African Horse Bot-Fly. He said Mr. B. R. Stuckenberg of the Natal Museum had recently sent to Dr. E. A. Cockayne a specimen of the cosmopolitan

Horse Bot-Fly, *Gasterophilus intestinalis* (Degeer), which has the arista of the right antenna modified into a tarsus-like structure. Dr. Cockayne sent the specimen to the Hope Department, Oxford University Museum, with Mr. Stuckenberg's request that the insect might be exhibited at a meeting of the Society. He continued that the insect was an example of the well-known phenomenon of homoeosis in which a pattern or an appendage of one region of the body is replaced by that of another. The particular replacement of an arista by a leg-like structure is known as aristopedia.

In some cases homoeosis is due to regeneration following amputation or other injury. In such instances it is suggested that the regenerating tissue has the potentiality of differentiating either normally (e.g. as an antenna) or abnormally (e.g. as a leg), the rate of regeneration acting as a switch between these two possibilities.

In *Drosophila* mutations occur which cause homoeosis, though the effect produced is dependent on environmental circumstances; high temperatures, for example, favouring the development of some normal structures and low temperatures, which slow down metabolism, favouring their replacement by others. Phenocopies with homoeotic appendages similar to those of genetic origin, may also be induced in normal strains of *Drosophila* by external factors. Goldschmidt (1938, *Physiol. Gen.*, N.Y.) explains these results by postulating a differential effect of temperature on the maturation of the imaginal discs and on the secretion of the evocators determining the nature of the appendages.

The specimen exhibited was a male caught on the slopes of a mountain near Haarlem, Longekloof Valley, Eastern Cape Province, South Africa, xi.1953. Unfortunately the right antenna was missing. The left antennal appendage consisted of the usual three basal segments, but the arista was replaced by a three-segmented tarsus bearing a pair of claws and a pair of empodia. Bedford (1918, 5th and 6th *Rep. Vet. Res. Dep. Agric. S. Afr.*: 630-632, figs. 14-16) notes homoeosis in eight females and eleven males of the same species. These are preserved in the collection of the Division of Veterinary Research, Onderstepoort, and show considerable variation in the form of the arista.

Accounts of homoeosis with numerous references are given by Balkashina, E. I., 1929, *Arch. EntwMech. Org.* **115**: 448-463; Carter, G. S., 1951, *Animal Evolution*, Lond.; Cockayne, E. A., 1926, *Trans. ent. Soc. Lond.* **1926**: 203-230; Needham, A. E., 1952, *Regeneration and wound-healing*, Lond.; Villee, C. A., 1942, *Amer. Nat.* **76**: 494-506; Wigglesworth, V. B., 1950, *Prin. Ins. Physiol.*, 4th ed., Lond.

Miss L. E. Cheesman gave an account, illustrated by lantern slides, of a collecting expedition which she had made to Lifu Island (Loyalty Islands) during 1949-50, an abstract of which appeared on page 5.

Before the meeting closed Dr. Scott said that he wished to draw Miss Cheesman's attention to a collection of insects from Lifu which was in the Cambridge University Museum.

E. B. BRITTON, *Honorary Secretary.*

The next meeting will be held on 2nd June, at 5.30 p.m.

ADDITIONS TO THE LIBRARY.

Presented.

- Crotch, G. R. *A revision of the Coleopterous family Coccinellidae.* 8vo. London. 1874. [Brigadier E. A. Glennie.]
- Nixon, Gilbert. *The world of bees.* 8vo. London (Hutchinson). 1954. [The Publishers.]
- Wallace, T., and Martin, J. T. *Insecticides and colonial agricultural development.* Proceedings of the sixth symposium of the Colston Research Society, Bristol, 1953. 4to. London (Butterworth's Scientific Publications). 1954. [The Publishers.]
- Whitehead, Stanley B. *Bees to the heather.* 8vo. London (Faber & Faber). 1954. [The Publishers.]

Purchased.

- Berlese, Antonio. *A. Berlesii Acari, Myriapoda et Scorpiones hucusque in Italia reperta.* Patavii. 1882-1896. [Wanting the small section on Scorpions.]
- Herter, Konrad. *Der Temperatursinn der Insekten.* Large 8vo. Berlin (Duncker & Humblot). 1953.
- Roberts, F. H. S. *Insects affecting livestock. With special reference to important species occurring in Australia.* 8vo. Sydney and London (Angus & Robertson). 1952.

In addition, separates have been presented by West African Institute for Trypanosomiasis Research; Professor P. A. Buxton, C.M.G., F.R.S.; Miss T. Clay and Mr. G. H. E. Hopkins; United States Department of Agriculture; Professor John Cohen; Dr. J. L. Cloudsley-Thompson; Directorate of Colonial Surveys; Mr. J. Cowley; Mr. H. M. Hallett; Dr. Charles Ferrière; Dr. D. S. Bertram; Dr. N. E. Hickin; Institute of Zoology, Warsaw University; Mr. Frank Hewson; Mr. J. E. A. Orian; and Mr. V. N. Alin.